505377927 03/15/2019

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT5424720

SUBMISSION TYPE:		CORRECTIVE ASSIGNMENT					
NATURE OF CONVEYANCE:		Corrective Assignment to correct the ASSIGNOR'S NAME previously recorded on Reel 048336 Frame 0695. Assignor(s) hereby confirms the ASSIGNMENT.					
CONVEYING PARTY	DATA						
		Name	Execution Date				
VYDHYANATHAN KA	LYANASUNI	DHARAM	02/14/2019				
RECEIVING PARTY	ΟΑΤΑ						
Name:	ADVANC	ADVANCED MICRO DEVICES, INC.					
Street Address:	2485 AU	2485 AUGUSTINE DRIVE					
City:	SANTA C	SANTA CLARA					
State/Country:	CALIFOF	CALIFORNIA					
Postal Code:	95054						
	1						
PROPERTY NUMBER	RS Total: 1						
Property Type		Number					
Application Number:	: 16	6249649					
CORRESPONDENCE							
Fax Number:	(5	12)329-2604					
Fax Number: Correspondence will	(5 I be sent to t	he e-mail address first; if that is					
Fax Number: Correspondence will	(5 I be sent to t if provided;	,					
Fax Number: Correspondence will using a fax number,	5) I be sent to t if provided; 5	he e-mail address first; if that is if that is unsuccessful, it will be 12-777-2010					
Fax Number: <i>Correspondence will using a fax number,</i> Phone:	(5 I be sent to t if provided; 5 ⁻ ac	he e-mail address first; if that is if that is if that is if that is unsuccessful, it will be	sent via US Mail.				
Fax Number: <i>Correspondence will using a fax number,</i> Phone: Email:	(5 I be sent to t if provided; 5 ⁻ ac e: P ⁽	<i>he e-mail address first; if that is if that is if that is unsuccessful, it will be</i> 12-777-2010 dmin@patentwerks.net	sent via US Mail.				
Fax Number: <i>Correspondence will using a fax number,</i> Phone: Email: Correspondent Name	(5 I be sent to t if provided; 5 ⁻ ac e: P ⁰ 12	<i>he e-mail address first; if that is if that is if that is unsuccessful, it will be</i> 12-777-2010 dmin@patentwerks.net OLANSKY & ASSOCIATES, P.L.L.	sent via US Mail.				
Fax Number: <i>Correspondence will using a fax number,</i> Phone: Email: Correspondent Name Address Line 1:	(5 I be sent to t if provided; 5 ⁻ ac e: Po 12 R	he e-mail address first; if that is if that is unsuccessful, it will be 12-777-2010 dmin@patentwerks.net OLANSKY & ASSOCIATES, P.L.L. 2600 HILL COUNTRY BLVD.	sent via US Mail.				
Fax Number: <i>Correspondence will</i> <i>using a fax number,</i> Phone: Email: Correspondent Name Address Line 1: Address Line 2: Address Line 4:	(5 <i>if provided;</i> 5 ⁻ ac e: P ⁰ 12 R A	he e-mail address first; if that is if that is unsuccessful, it will be 12-777-2010 dmin@patentwerks.net OLANSKY & ASSOCIATES, P.L.L. 2600 HILL COUNTRY BLVD. -275	sent via US Mail.				
Fax Number: Correspondence will using a fax number, Phone: Email: Correspondent Name Address Line 1: Address Line 2:	(5 I be sent to t if provided; 5 ac e: P 12 R 12 R NUMBER:	he e-mail address first; if that is if that is unsuccessful, it will be 12-777-2010 dmin@patentwerks.net OLANSKY & ASSOCIATES, P.L.L. 2600 HILL COUNTRY BLVD. -275 USTIN, TEXAS 78738	sent via US Mail.				
Fax Number: <i>Correspondence will</i> <i>using a fax number</i> , Phone: Email: Correspondent Name Address Line 1: Address Line 2: Address Line 4:	(5 I be sent to t if provided; 5 ac e: P 12 R 12 R NUMBER:	he e-mail address first; if that is if that is unsuccessful, it will be 12-777-2010 dmin@patentwerks.net OLANSKY & ASSOCIATES, P.L.L. 2600 HILL COUNTRY BLVD. -275 USTIN, TEXAS 78738	sent via US Mail.				
Fax Number: Correspondence will using a fax number, Phone: Email: Correspondent Name Address Line 1: Address Line 2: Address Line 4: ATTORNEY DOCKET NAME OF SUBMITTER	(5 I be sent to t if provided; 5 ac e: P 12 R 12 R NUMBER:	he e-mail address first; if that is if that is unsuccessful, it will be 12-777-2010 dmin@patentwerks.net OLANSKY & ASSOCIATES, P.L.L. 2600 HILL COUNTRY BLVD. -275 USTIN, TEXAS 78738 1458-0582 PAUL J. POLANSKY	sent via US Mail.				
Fax Number: <i>Correspondence will</i> <i>using a fax number</i> , Phone: Email: Correspondent Name Address Line 1: Address Line 2: Address Line 4: ATTORNEY DOCKET NAME OF SUBMITTER SIGNATURE:	(5 I be sent to t if provided; 5 ac e: P 12 R 12 R NUMBER:	he e-mail address first; if that is if that is unsuccessful, it will be 12-777-2010 dmin@patentwerks.net OLANSKY & ASSOCIATES, P.L.L. 2600 HILL COUNTRY BLVD. -275 USTIN, TEXAS 78738 1458-0582 PAUL J. POLANSKY /Paul J. Polansky/	sent via US Mail.				
Fax Number: <i>Correspondence will</i> <i>using a fax number</i> , Phone: Email: Correspondent Name Address Line 1: Address Line 2: Address Line 4: ATTORNEY DOCKET NAME OF SUBMITTER SIGNATURE: DATE SIGNED: Total Attachments: 8	(5 1 be sent to t if provided; 5 ac e: P 12 R A NUMBER: R:	he e-mail address first; if that is if that is unsuccessful, it will be 12-777-2010 dmin@patentwerks.net OLANSKY & ASSOCIATES, P.L.L. 2600 HILL COUNTRY BLVD. -275 USTIN, TEXAS 78738 1458-0582 PAUL J. POLANSKY /Paul J. Polansky/	sent via US Mail.				
Fax Number: <i>Correspondence will</i> <i>using a fax number</i> , Phone: Email: Correspondent Name Address Line 1: Address Line 2: Address Line 2: Address Line 4: ATTORNEY DOCKET NAME OF SUBMITTER SIGNATURE: DATE SIGNED: Total Attachments: 8 source=2019-02-14_18	(5 i be sent to t if provided; 5 ac e: P 12 R A NUMBER: R: 0507-US-NP	he e-mail address first; if that is if that is unsuccessful, it will be 12-777-2010 dmin@patentwerks.net OLANSKY & ASSOCIATES, P.L.L. 2600 HILL COUNTRY BLVD. -275 USTIN, TEXAS 78738 1458-0582 PAUL J. POLANSKY /Paul J. POLANSKY 03/15/2019	sent via US Mail.				
Fax Number: <i>Correspondence will</i> <i>using a fax number</i> , Phone: Email: Correspondent Name Address Line 1: Address Line 2: Address Line 2: Address Line 4: ATTORNEY DOCKET NAME OF SUBMITTER SIGNATURE: DATE SIGNED: Total Attachments: 8 source=2019-02-14_18 source=2019-02-14_18	(5 i be sent to t if provided; 5 ac e: P(12 R A NUMBER: R: 0507-US-NP 0507-US-NP	he e-mail address first; if that is if that is unsuccessful, it will be 12-777-2010 dmin@patentwerks.net OLANSKY & ASSOCIATES, P.L.L. 2600 HILL COUNTRY BLVD. -275 USTIN, TEXAS 78738 1458-0582 PAUL J. POLANSKY /Paul J. Polansky/ 03/15/2019 _Assignment-AMD-E#page1.tif	sent via US Mail.				

source=2019-02-14_180507-US-NP_Assignment-AMD-E#page5.tif source=2019-02-14_180507-US-NP_EPAS Cover Sheet-AMD#page1.tif source=2019-02-14_180507-US-NP_Notice_of_Recordation-AMD#page1.tif source=2019-02-14_180507-US-NP_Notice_of_Recordation-AMD#page2.tif

ASSIGNMENT OF PATENT RIGHTS

This is an assignment of patent rights between inventor(s) **Vydhyanathan**

Kalyanasundharam, Alexander J. Branover and Kevin M. Lepak (hereinafter referred to as the "Inventor(s)") and Advanced Micro Devices, Inc., having a place of business at 2485 Augustine Drive, Santa Clara, California, USA (hereinafter referred to as the "Assignee").

WHEREAS, Inventor(s) are named as inventors in the patent application filed in **United States of America** on or about the execution date of this assignment, entitled **LIGHT-WEIGHT MEMORY EXPANSION IN A COHERENT MEMORY SYSTEM**, and having a docket number of **1458-0582** (hereinafter referred to as the "Application"); and

WHEREAS, Assignee has a desire to acquire all rights, title, and interest in the invention(s) disclosed in the Application (hereinafter referred to as the "Invention(s)"), including any rights, title, and interest in the Invention(s) not previously transferred to Assignee through prior agreement.

NOW, THEREFORE, the parties agree as follows:

1. To the extent that Inventor(s) are subject to a prior agreement transferring rights, title, and/or interest in the Invention(s) to the Assignee, Inventor(s) hereby confirm such transfer.

2. To the extent that Inventor(s) retain any rights, title, or interest in the Invention(s) not vested in the Assignee on the date(s) of execution of this Assignment, Inventor(s) hereby assign and otherwise transfer to the Assignee their entire right, title, and interest, throughout the world, in and to: the Invention(s), including any patent applications, patents, invention registrations, and equivalents thereof (including any and all provisional, international, regional, and national patents and patent applications, and all divisions, continuations, continuations-in-part, renewals, reissues, reexams, substitutes and extensions thereof), for the Invention(s) and all rights to claim priority thereto. Inventor(s) further assign and otherwise transfer to Assignee all causes of action and remedies arising under any patent or patent application for the Invention(s) prior to, on, or after the

date(s) of execution of this Assignment. Inventor(s) shall not be entitled to an accounting for any causes of action or remedies pursued by Assignee.

3. The transfers set forth in Paragraphs 1 and 2 above are in consideration for the sum of at least one U.S. dollar (US\$1) (or its equivalent) and/or other consideration for which both parties acknowledge to be valuable. Such consideration includes but is not limited to at least one of the following: employment, an independent contractor agreement, monetary payment, or other benefit hereby acknowledged as received.

4. Inventor(s) hereby authorize and request the Commissioner of Patents and Trademarks, or equivalent thereof, to issue the patent for the Invention, and all resulting patents therefrom, insofar as the Inventor(s)' interest is concerned, to the Assignee.

5. Inventor(s) further agree to execute any and all powers of attorney, applications, assignments, declarations, affidavits, and any other papers in connection therewith necessary to perfect Assignee's rights, title, and interest in the Invention(s).

6. Inventor(s) hereby authorize Assignee, its successors and assigns, its legal representatives, or anyone the Assignee may properly designate, to insert in this Assignment of Patent Rights the filing date and/or application number of the Application when ascertained.

7. Inventor(s) hereby further agree to, with respect to any patent application or patent for the Invention(s), at the expense of the Assignee:

- i) testify in any legal proceedings,
- ii) sign all lawful papers,

iii) execute all divisional, continuation, continuation-in-part, reissue, reexamination, and substitute applications,

iv) make all lawful oaths, and assist in vesting title in the Assignee and to aid the Assignee to obtain and enforce proper protection for the subject matter of the Invention(s) in all countries and regions, and

v) notify Assignee promptly (by facsimile or first class mail) of any subpoena or contact by any person other than Assignee or its agents regarding the Invention or resultant patent(s) issuing therefrom, and in any event at least one week prior to any deposition, legal inquiry or legal proceeding relating to the above identified invention.

PATENT REEL: 048612 FRAME: 0858 Inventor:

(Signature)

2/14/2019 (Date)

Vydhyanathan Kalyanasundharam

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of COUFORNIA) County of ONTA CLARA)

On <u>F6.14,2019</u> before me, <u>Sutar P. Flores</u>, Notary Public, personally appeared <u>Vici hyperclar kelymenter/longithe</u> proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies) and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of <u>CAUFORNIA</u> that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Notary Public



[SEAL]

This assignment is executed on the date(s) of which the Inventor(s) have signed.

Inventor: (Signature)

Alexander J. Branover

(Printed Name)

ر (Date)

Witness # 1 (Signature) ic le Com (Print Name)

01/11/2019 (Date)

Witness # 2:

(Signature) (Print Name) James Thomas

(Date)

Inventor:

(Signature) Jennie (Date)

Kevin M. Lepak

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of VENAS County of Travis

On $X_{intermediately}$ before me, $A_{intermediately}$. Notary Public, personally appeared $X_{intermediately}$, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies) and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of $\underline{\neg e \land G \land}$ that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Notary Public

[SEAL]

ANGELA WITHROW Notary ID #129279984 **Wy Commission Expires** Jan 25, 2021

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2

SUBMISSION TYPE:			NEW ASSIGNMENT			
NATURE OF CONVEYANCE:			ASSIGNMENT			
CONVEYING PARTY DATA						
		Nan	ne	Execution Date		
VYDYANATHAN KALY	ANASUNDHARAM			02/14/2019		
ALEXANDER J. BRANO	VER			01/11/2019		
KEVIN M. LEPAK				01/15/2019		
RECEIVING PARTY DATA						
Name:	ADVANCED MICRO) DF	EVICES, INC.			
Street Address:	24 200000000000000000000000000000000000	2485 AUGUSTINE DRIVE				
City:	SANTA CLARA					
State/Country:	CALIFORNIA					
Postal Code:	95054					
PROPERTY NUMBERS Total: 1 Property Type Number						
		06.40	Number			
Application Number:	1624	964	9			
CORRESPONDENCE DATA Fax Number: (512)329-2604 Phone: 512-777-2010 Email: admin@patentworks.net Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail. Correspondent Name: POLANSKY & ASSOCIATES, P.L.L.C. Address Line 1: 12600 HILL COUNTRY BLVD Address Line 2: SUITE R-275 Address Line 4: AUSTIN, TEXAS 78738						
ATTORNEY DOCKET NUMBER:			1458-0582			
NAME OF SUBMITTER:			PAUL J. POLANSKY			
Signature:			/Paul J. Polansky/			
Date:			02/14/2019			
Total Attachments: 5 source=2019-02-14_180507-US-NP_Assignment-AMD-E#page1.tif source=2019-02-14_180507-US-NP_Assignment-AMD-E#page2.tif source=2019-02-14_180507-US-NP_Assignment-AMD-E#page3.tif source=2019-02-14_180507-US-NP_Assignment-AMD-E#page4.tif source=2019-02-14_180507-US-NP_Assignment-AMD-E#page5.tif						
RECEIPT INFORMATION						
EPAS ID: PAT5376473 Receipt Date: 02/14/2019						



UNITED STATES PATENT AND TRADEMARK OFFICE

UNDER SECRETARY OF COMMERCE FOR INTELLECTUAL PROPERTY AND DIRECTOR OF THE UNITED STATES PATENT AND TRADEMARK OFFICE

FEBRUARY 15, 2019

PTAS

POLANSKY & ASSOCIATES, P.L.L.C. 12600 HILL COUNTRY BLVD SUITE R-275 AUSTIN, TX 78738

505329692

UNITED STATES PATENT AND TRADEMARK OFFICE NOTICE OF RECORDATION OF ASSIGNMENT DOCUMENT

THE ENCLOSED DOCUMENT HAS BEEN RECORDED BY THE ASSIGNMENT RECORDATION BRANCH OF THE U.S. PATENT AND TRADEMARK OFFICE. A COMPLETE COPY IS AVAILABLE AT THE ASSIGNMENT SEARCH ROOM ON THE REEL AND FRAME NUMBER REFERENCED BELOW.

PLEASE REVIEW ALL INFORMATION CONTAINED ON THIS NOTICE. THE INFORMATION CONTAINED ON THIS RECORDATION NOTICE REFLECTS THE DATA PRESENT IN THE PATENT AND TRADEMARK ASSIGNMENT SYSTEM. IF YOU SHOULD FIND ANY ERRORS OR HAVE QUESTIONS CONCERNING THIS NOTICE, YOU MAY CONTACT THE ASSIGNMENT RECORDATION BRANCH AT 571-272-3350. PLEASE SEND REQUEST FOR CORRECTION TO: U.S. PATENT AND TRADEMARK OFFICE, MAIL STOP: ASSIGNMENT RECORDATION BRANCH, P.O. BOX 1450, ALEXANDRIA, VA 22313.

REEL/FRAME: 048336/0695 RECORDATION DATE: 02/14/2019 NUMBER OF PAGES: 7 BRIEF: ASSIGNMENT OF ASSIGNORS INTEREST (SEE DOCUMENT FOR DETAILS). DOCKET NUMBER: 1458-0582 ASSIGNOR: KALYANASUNDHARAM, VYDYANATHAN DOC DATE: 02/14/2019 ASSIGNOR: BRANOVER, ALEXANDER J. DOC DATE: 01/11/2019 ASSIGNOR: LEPAK, KEVIN M. DOC DATE: 01/15/2019 ASSIGNEE: ADVANCED MICRO DEVICES, INC. 2485 AUGUSTINE DRIVE SANTA CLARA, CALIFORNIA 95054 APPLICATION NUMBER: 16249649 FILING DATE: PATENT NUMBER: ISSUE DATE: TITLE: LIGHT-WEIGHT MEMORY EXPANSION IN A COHERENT MEMORY SYSTEM

ASSIGNMENT RECORDATION BRANCH PUBLIC RECORDS DIVISION

RECORDED: 03/15/2019